Changing Household Patterns of Young Couples in Low- and Middle-Income Countries

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Abstract

While young couples in western societies generally form a new household, in low-income societies new unions are often incorporated into existing households. However, there is a growing tendency in the nuclearization of households as intergenerational co-residence is undermined by growing wage labour opportunities that provide incentives for rural-urban migration and because small nuclear families adapt better to urban societies characterized by high geographic and social mobility. The objective of this paper is therefore to jointly study for a selection of low- to middle-income countries the socioeconomic and demographic conditions of women aged 15-34 and their partners in relation to their household patterns with particular interest in the comparison of nuclear and extended households. The analysis will mainly rely on data from the Integrated Public Use of Microdata Series International database (https://international.ipums.org/international/) from which census samples for the last two or latest available census rounds for 18 countries have been extracted. Results showed that women being of older age (within the 15-34 range) and at the same time having attained at least primary school education, having a husband who does not work in the primary sector and who is neither much older nor much younger were all associated with living in a nuclear household. However, individual factors explained only a small part of the overall variation in the household arrangements of young couples, suggesting that differences between countries in these dimensions do not explain much of the difference in household structure. Rather, societal indicators like economic development and the average age at marriage – that were significant in our models – may explain better the overall slow transition towards the nuclear family.

1. Introduction

From a global perspective, family formation patterns are not the automatic product of individual decisions, but rather fall among the broader set of socio-cultural practices linked to various (interdependent) family and gender systems characterizing regions or countries. In general terms, family systems define "what it means to be related by blood, or descent, and by marriage; who should live with whom at which stages of the life course; the social, sexual, and economic rights and obligations of individuals occupying different kin positions in relation to each other; and the division of labour among kinrelated individuals" (Mason 2001, p 161). Similarly, gender systems define male and female roles and their corresponding rights and obligations (Ridgeway & Smith-Lovin 1999).

A brief run through the historical and anthropological literature sheds light on the great plasticity of familial systems in the variegated cultures of which we have knowledge (Coontz 2000). This flexibility arises in the majority of cases from the necessities of adaptation to diverse environmental, biological, geographical economic, political and social pressures (Fox 1967). However, despite the obvious diversity in family formation patterns, in the past there was the tendency to equate societal models with universal models of the family (Elder 1965; Josephson & Burack 1998). In the case of contemporary western social sciences, the prevailing model was (and is) the nuclear family model whose members impart the same ideals of democracy and freedom believed to be at the base of liberal political and economic systems (e.g. Becker 1991). A crucial difference between the pre-modern household pattern of young couples in Northwest Europe and that of other countries (in the past and in some cases still today) is that in the former a couple usually established their own household upon marriage (Coontz 2005). However, as some argue (e.g. Thornton 2001), generalizing this family model to the analysis of other societies increases the chances of falling into evolutionary stances that act to distort an appropriate understanding of the phenomenon, as not all societies necessarily undergo the same transitional phases.

In this paper, we take a temporal and broad geographic comparative framework to study the household structure of young couples in 18 low- and middle-income countries from Africa, Asia, Central and South America where social and economic modernization processes are only just starting to take hold. We take a young couple's perspective as a way to recognize the importance that independent living upon marriage has had historically and presently on the nuclearization of households. For our analyses we make use of census data and we adopt a multilevel approach to combine in a single model individual and country-level characteristics that are associated with the type of household in which young couples reside. For the sake of comparability, we contrast between nuclear and extended households. Particular interest lies in ascertaining whether or not young couples are moving away from patri-local or other extended household forms, and which factors may play a part in this process. However, we will not examine specific countries in detail. Before moving on to the method and results sections, a few words on how economic, demographic and cultural factors can influence the way young couple's households are structured.

2. Societal determinants of young couples' co-residence patterns

The household typology that is used when conducting research on household patterns and living arrangements will depend on both the research goal and data availability, but are likely to contain the basic elements of both Le Play's and Laslett's classification, i.e. a distinction between simple and more complex types of households (Silver 1982; Laslett 1972). Still cause for discussion among scholars, however, is what determines societal changes in household organization, i.e. a shift from simple to complex (Smith 1993; Thornton 2005). While most agree that the ability of young couples to determine their own family life is a key element differentiating family systems around the world, there is much less agreement on the mechanisms by which couples attain higher agency and loosen themselves from social and family pressures on family decisions. The debate on this topic, impossible to reproduce at length in this article, centres on whether emphasis is placed on economic, demographic or cultural and ideological factors of family change.

2.1. The influence of economic development on household structure

Historically, Western countries – in particular Northwest European countries – have been portrayed as more egalitarian, less family oriented and more individualistic societies as compared to other countries (Thornton 2001). There is, however, disagreement over whether these traits were inherent in Western societies before early industrialization (e.g. Hajnal 1965, 1982; Laslett 1972; Macfarlane 1979) or resulted from changes in production systems brought about by early industrialization. The emergence of industrial and post-industrial societies and the consequent breaking of ties with the countryside – processes that are now also taking place in low- and middle-income countries – are considered by many as the main inflection point in family changes, among others, from the stem family to the nuclear family and from arranged marriages to marital courtships (Coontz 2005; Goode 1963).

The idea that economic development is associated with simplification of the household and independent residence of the elderly became widely accepted in the twentieth century. Mid-twentieth-century sociological literature highlighted the connection between industrialization and nuclear-family structure (e.g. Parsons 1949). Intergenerational co-residence was said to be undermined by growing wage labour opportunities, which provided incentives for the younger generation to leave the farm and move to urban areas. It was argued that small nuclear families were best adapted to urban societies characterized by high geographic and social mobility (e.g. Burgess 1960). By the 1960s family change processes were taking place in most places of the world. This led some researchers to conclude that nuclear families would ultimately become the majority family type even if substantial differences in family systems are maintained (e.g. Goode 1963).

Since then, academic literature generally supposed intergenerational co-residence to be a feature of traditional agricultural societies that declines in importance as a society industrializes, experiences economic expansion or high migration flows (Ruggles & Heggeness 2008). Ruggles & Heggeness

concluded, however, that despite the trade-off between the costs and benefits of co-residence for each generation and the general consensus by others that intergenerational co-residence is declining in most countries as a result of economic development, no clear trend in intergenerational co-residence was observed for 15 low- and middle-income countries over the last three decades of the 20th century[1]. It would appear, therefore, that the cultural indelibility of traditional family systems remain resilient to change, an argument that was also provided for the stability in the age at entry into formal marriages or consensual unions in Latin America by Fussel & Palloni (2004) despite the significant declines in fertility and increases in female education and labour force participation.

One factor that plays an important role in the dynamics of traditional family forms and ensuing household compositions is how wealth, property, and power are distributed. For instance, in the case of patrilineal joint-family and stem-family systems these are concentrated in the hands of the older generation of men (Le Play 1884; Ruggles 1994; Pottthast-Jutkeit 1997; Shäfer 1997). As a result, the younger generation is dependent on the older one, relying on elders for housing, employment, and eventual inheritance (Ruggles & Heggeness 2008). However, as populations age and household structures simplify in developing countries, this hierarchical structure changes whilst elderly co-resident parents become more dependent on their children for both economic support and care.

As expressed by Ruggles & Heggeness (2008), identifying which generation is dependent has theoretical implications for the impact of economic development on the frequency of intergenerational co-residence. In particular, if the younger generation profits from expanded economic opportunities, we would expect a reduced frequency of co-residence in traditional patriarchal multigenerational families (but see also Coontz 2000), since the alternatives to familial employment would become more attractive. At the same time, however, the rise of wage labour could contribute to an increase of landless elderly with no means of support, and the rising income of younger-generation wage earners could actually increase their capacity to take in destitute parents. Thus, all things being equal, one would expect rising economic opportunity for the young to discourage traditional patriarchal co-residence, but perhaps to encourage co-residence associated with old-age support (Ruggles & Heggeness 2008, p. 255). Indeed, in Taiwan, a country that is undergoing a period of continuing rapid social, economic, and demographic change, co-residence of a married couple with the husband's parents continues to be an important aspect of family life despite Taiwan's industrialization and convergence to a Western model of consumption and slow increase in the prevalence of nuclear households (Weinstein *et al.* 1990). However, the timing and duration of intergenerational co-residence had changed: married couples were more likely to begin married life on their own or to separate quicker from the parents' household. Moreover, taken from the opposite perspective, in 1985

[1] The authors did mention that "four of the 15 countries show declining co-residence of elderly parents with adult children, but these are not countries with substantial economic development over the period studied" (*ibid.* p. 270). However, upon closer inspection these were the four African countries in the sample, suggesting that migration rather than economic development *per se* could be behind this decline. For instance, according to Shäfer (1997) the increasing mobility and urban opportunities to earn a living of young *Mende* males in Sierra Leone tend to undermine the authority of the more senior males, which resulted in a decline in the size of multi-generational family residential units (from as many as 44 members on average in 1940 to 6-8 persons by 1965).

about 80% of the husband's parents was still living with a child. The authors concluded that there seems to be a high probability of continuing declines in co-residence as the norms for co-residence are gradually eroding, the increasing levels of female education (reducing dependency on the husband's family), fertility levels remaining below replacement and universal health insurance permitting more independent living among the elderly themselves.

2.2. How demographic factors influences household structures

In the past, some historians suggested that the distinctive feature of Western European and American history was the early and long-standing predominance of nuclear families. Indeed, later research demonstrated that there had indeed been a decline of extended families (Coontz 2000), although as a result of high mortality rates and second marriages, step-families were much more numerous than we today suppose (Segalen 1981; Coontz 2005). However, the explanation given was that as lives were shorter in the past, comparatively few families had had enough living members to potentially reside as a multigenerational household, but the ones that did represented a high proportion of all such potential arrangements. By contrast, at present a larger number of co-resident extended families would embody just a tiny fraction of potential multigenerational households. For the same token, the privacy that is greatly valued by nuclear families today is fairly recent as in the earlier days it was quite common for servants, borders, lodgers to move freely in and out of the household and for more distant family members to visit (Ruggles 1994; Coontz 2000).

Currently, almost all countries in the world are faced with an ageing population due to declining fertility and mortality levels. Although demographic ageing is still at a (very) early stage in developing countries, the number of elderly dependents is also set to increase while the proportion of working-age adults that are able to provide support will level off or even decline. This means that younger cohorts (who progressively have fewer siblings) have increasing chances to live with (longer surviving) parents. According to Ruggles & Heggeness (2008) this may cause two types of outcomes: if the parent has a farm and the coresident child will inherit, fewer siblings means less competition, but in case the elderly parent is destitute and needs to move in with a child for care, fewer siblings mean increased responsibility. This would imply that current demographic changes in developing countries are substantially increasing the potential for intergenerational co-residence.

To return to the study by Weinstein *et al.* (1990), apart from economic factors, changes in family structure in Taiwan were also accompanied by fertility decline as fewer or no sons meant less opportunity for the continuation of the patrilocal tradition. In turn, a couple's co-residence status also reinforces demographic behaviour: age at marriage was highest and actual and preferred fertility lowest among those who always lived in nuclear households as a couple (i.e. also compared to those who moved from an extended to a nuclear household).

2.3. The effect of the internationalization of norms and values on family formation

Changes in the household structure also depend on worldwide supranational processes. Since the 1960s in the US and many countries of Western and Northern Europe and about a decade later in the rest of Europe, shifts in values related to family life and children weakened the 'traditional' family, understood as the nuclear family, an institution that caused interrelated changes in partnership behaviour, family formation and fertility. These changes became characteristic of what later became known as the second demographic transition (SDT) an idea postulated by Lesthaeghe & Van de Kaa (1986) and Van de Kaa (1987; 2004) that describes a substantial and unprecedented progress in cohabitation, the postponement of both the timing of marriage and children bearing, childlessness, lone parenthood, having children outside marriage, having fewer children, the parallel retreat from marriage and from traditional norms of sexual restraint, as well as the increase in divorce (see also Lesthaeghe & Surkyn 2006). In particular, the growing search for individual status that has caused a shift from family orientation towards an emphasis on the individual has made people from many societies move away at different speeds from traditional behavioural patterns and types of living arrangements (Van de Kaa 1987; Keilman 1987).

While progress in literacy and wealth made the first demographic transition possible, the massive incorporation of women into formal education systems, b) high rates of female participation in labour markets, c) and the increasing autonomy of women over sexual and reproductive decisions, i.e. factors related to the role of women, allowed changes in union and family formation and household composition to take place (Oppenheimer 1994; Beck & Beck-Gernsheim 1995). It was the much improved and highly efficient methods of contraception that played a catalytic role, as did improvements in medical technology and communication. By no longer being constrained by material anxieties and social control, the individual has become more concerned with their higher-order needs centred on self-actualization, individual autonomy and recognition (Lesthaeghe & Surkyn 2006), thus making 'alternative' forms of family and relationship formation more practical, feasible and eventually socially acceptable (Coleman 2005). Intimate partnerships and sexuality, but also the relationships between parents and their children, have moved away from the realm of normative control and institutional regulation, giving rise to the new ideal of reflexive 'pure relationships' based on mutual consent and the recognition of individual autonomy (Giddens 1992).

Conversely, early marriage emerges as a common feature of those societies in which third parties (family, religion, social groups, state) exert some influence on individual's martial decisions, i.e. when and with whom to marry. As observed by Jones (2010), the wider age gap between spouses in South Asian countries reflects parent-arranged marriage and patriarchal family structures, which typically lead to young age at marriage for females.

Despite such global changes, the multiplicity in cultural contexts, societal and economic developments and differences in the timing of such developments has meant that inter- and intra-regional differences in household formation patterns and characteristics of young couples persist. To briefly offer an example, while in western countries, young couples are more likely to start a new

household, in poorer and more traditional contexts it is expected that one of the couple (almost always the women) moves into the household of the parents-in-law (e.g. in much of China and Japan until the early 1900s, and currently still common in a large parts of Africa, the Arab world and India; Burguière *et al.* 1996).

However, little is yet known as to how the internationalisation of norms and values is changing family formation patterns in low-to-middle income countries. According to Coontz (2005), while many young people in industrialized countries delay cohabitation/marriage and parenthood until the mid-to-late twenties (although they are likely to leave their parental home), children are still considered insurance for parents' old age and an important contribution to family savings in low-income countries. Nevertheless, changes have also been observed in poorer countries as female emancipation in Africa has helped daughters or granddaughters (often school-educated) of women who experienced the expansion of commercial crops (and thus the decline in the need for family labour) to refuse to stay on, leaving the village circle instead. The migration of women to the towns has constituted a major phenomenon in black Africa; they are in fact engaged in challenging the lineage system, and tradition in general, by acting directly on the logic of matrimonial exchanges (by becoming defiant towards marriage and motherhood), compromising marriage opportunities for country people and (as a result) intensifying the male exodus (Dozon 1996). Migration may, however, not always have positive outcomes as women are often confined to low-grade jobs and domestic work.

As extended education becomes the primary route to finding a job that provides a wage one can survive on, one spin-off of the rise in the age of economic and educational independence has been the emergence of a youth culture that crosses geographic borders, as well as some racial, class, and gender boundaries (Coontz 2000). New ways of looking at the world can come from the schooling process itself, as new ideas and attitudes are portrayed in the educational curriculum, but they can also be gained from new access to the mass media, including television, internet, newspapers, magazines, and movies (Thornton & Lin 1994). One consequence of this has been that young adults no longer see it as normative to enter and settle into long-term adult roles, but instead associate young adulthood with a period of frequent change in and exploration of possible life directions in love, work, and worldviews (see also Arnett 2000).

3. Hypotheses and study objective

The main interest of this study is to determine if there is a tendency towards household nuclearization, i.e. if over time more young couples are living on their own rather than with (one of the set of) parents or in another form of extended household and which factors are associated with living in a nuclear household. A multi-level approach is taken as both individual- and country-level variables will be simultaneously tested. Like Thornton & Lin (1994), we expect that co-residence at marriage would be less the greater the extent to which the young couple is exposed before marriage to nonfamilial

contexts. As a way to summarize the earlier mentioned potential determinants of living arrangements for young couples and on the basis of the data we obtained we constructed the following hypotheses[2]:

1. Age (associated with greater maturity and experience, conducive to behaviour less subject to parental control) is positively associated with living in a nuclear household.
2. Higher educational attainment is positively associated with living in a nuclear household (both due to economic and ideational factors).
3. Women active in the workforce is positively associated with living in a nuclear household (increases economic independence).
4. Female headship is positively associated with living in a nuclear household (increases empowerment).
5. Being born in a different region than the region of residence lowers the odds of living in an extended household.
6. Literature generally supposes that the extended family is a feature of traditional agricultural societies that declines in importance as a society industrialize and urbanize. We therefore hypothesize that male agricultural employment is positively associated with young couples living in extended households.[3]
7. Extreme age hypergamy (defined here as the husband being at least 18 years older than the wife), is positively and age hypogamy (defined here as the wife being at least 3 years older than the husband), is negatively associated with living in an extended household as spousal age differences are related to the level of authority of husbands (and in-laws) on wives.
8. Using Goode's (1963) prediction that nuclear families will ultimately become the majority, we test if there is a tendency towards household nuclearization (i.e that time is negatively associated with extended households) (country-level).
9. Economic development (GDP in purchasing power parities) is associated with a nuclearization of households (country-level).
10. A high average age at marriage is associated with a nuclearization of households (country-level).
11. Life expectancy at age 50 (used as an indicator of the years of life that parents of young couples are expected to live) is positively associated with extended households (country-level).
12. The total fertility rate (TFR) 20-25 years earlier (used as an indicator of the number of potential siblings that "compete" to co-reside with their elderly parents) is negatively associated with extended households (country-level).

[2] Similar and other determinants were also identified and tested by Thornton and Lin (1994) in their exhaustive study on *"Social change and the family in Taiwan"*. As their study used detailed survey data and ours individual, though cross-sectional, characteristics from censuses and national-level indicators, we are not able to replicate their study on other countries in the same manner. Nevertheless, despite our more "macro" approach, given that we analyse more than a dozen countries at two time points we hope to be able to identify potential factors associated with changing young couple's household structures.

[3] No internationally comparable variable that measures the degree of urbanization could be obtained due to differences in urban settings, definitions and measurements.

We confer special emphasis to education due to the significant global progress made in this area. The power of the dimension of education originates in its efficiency as a principle of differentiation within social structures (Bourdieu 2006) but also represents the access to new values and beliefs, such as those prevalent in the presumably more developed West (Thornton & Philipov 2009). It is likely that both these structural and ideational elements of education would influence, apart from values, and beliefs also family and demographic behaviour, including the propensity for young couples to co-reside with parents or other family members. Despite differences in the rhythm and intensity of educational change, there has been a relative increase in levels of schooling, visible both in developed and developing countries (Buchmann & Hannum 2001). However, there are still considerable inequalities in many regions related to education access (Lloyd, Kaufman, & Hewett 2000; Kravdal 2002; UNESCO 2007).

Besides the fact that someone's household composition is conditioned upon individual-level factors, contextual influences cannot be ignored. In particular, levels of fertility and old-age survival are likely to affect the potential of multi-generational co-residence, as well as economic and housing factors that may make independent living possible and affordable (or not).

The consequences of these changes for union formation have not been systematically studied, nor their implications in the timing of cohabitation and the composition and residential structure of young couples. In this paper, we will concentrate on this last aspect, namely to contrast the individual, demographic, socioeconomic and contextual characteristics between young couples who live in nuclear households with those in extended households. When possible, for each selected country two different time points are taken in order to be able to ascertain if socioeconomic and cultural changes are also having their effect on the household composition slowly taking place in a broad selection of low- and middle income countries.

4. Method

4.1. The data

For our analysis we will use the Integrated Public Use of Microdata Series (IPUMS) International database (https://international.ipums.org/international/), the most complete database of global census microdata available today (62 countries, 185 censuses, 397 million person records) for the period 1960-2009). It allows multilevel analysis to assess demographic and socioeconomic characteristics and trends of household patterns of young couples at two levels: individual and national. Using multilevel modelling (logit regression) we will measure the country effects on couple's household formation, observe variability levels between samples and countries and assess how much of the total variation in household structure can be attributed to differences between individuals or countries.

Our primary interest lies in changing household patterns of young couples in low- to middle income countries between the 1990 and 2000 census rounds. Individual registers were therefore

initially selected on the basis of four criteria: 1) the person is in a relationship (married or consensual); 2) the couple lives in the same household; 3) the age of both partners is known; and 4) the female partner is between 15 and 34 years old. In addition, registers with missing values for one or more of the independent variables that was analyzed in the study were deleted. This varied between 0.4% of the pre-selected cases in the China 1982 sample to 34.6% in the South Africa 1996 sample (mean 7.8%, st. dev. 8.5%). Data consistency was checked by comparing the household structure of couples where the female partner is aged between 15-34 using the initial and final sample. Results revealed few differences (a maximum absolute difference of 2.4% more nuclear/less extended households in the case of the South Africa 2007 sample).

The final sample selection criterion was that data were available on each of the analyzed independent variables, which left us with 29 samples from 18 countries (13 and 8 from Africa; 6 and 5 from Asia and 10 and 5 from Latin America), equating to almost 7 million couples[4] (see Table 1).

The analyses are based on co-residing heterosexual couples[5] and inter-generational co-residence will be examined from the young-cohort perspective, whereby the female partner aged 15-34 is taken as the point of reference. This female perspective to the study is opted for because it enables a better analysis of union formation in general and marital age hypergamy in particular. For instance, if couples where the male partner was aged 15-34 were to be chosen, many women would have been excluded from the analysis as a large proportion of men in low income countries do not marry until their early thirties or marry with women much younger than themselves.

After the young couples are selected, they are placed in either nuclear or extended households depending on the presence of other individuals in the household.[6] The exact definitions are as followed:

Nuclear: Contains a co-residing couple, married or not with or without non-relatives (e.g. servants) and own children.

[4] The Rwanda (2002), Cambodia (1998) and Iraq (1997) samples available did comply with all criteria but were excluded due to large war losses and internal displacements which would have had a substantial influence on household patterns. Similarly, Palestine (1997) was excluded due to land constraints imposed by the Israeli government, while the Pakistan (1973) sample was considered too old for comparative purposes.

[5] The IPUMS variable SPLOC (Spouse's location in household, where SPLOC $\neq 0$) was used to identify couples. These include both married and non-married couples as well as those who did not specifically declare themselves as "cohabiting" or "married" but stated their relationship to the household head as "spouse".

[6] The variable was derived from the IPUMS variable HHTYPE (household type) by aggregating the categories "Married/cohab couple, no children" and "Married/cohab couple with children" for nuclear households and "Polygamous family", "Extended family, relatives only" and "Composite household, family and non-relatives" for the extended category. Our definition for nuclear household is quite restrictive as it excludes unmarried relatives that are not the parents (i.e. vis-à-vis Weinstein *et al*. 1990), although domestic employees, boarders and other non-relatives are not excluded (i.e. similar to Laslett 1972). However, as the information on the relationship between the individual and the head of household is not always complete or exact (e.g. one does not know if the person is blood-related) for all our census samples we considered that constructing a more restricted type of nuclear household would yield more comparable results over time and between countries. Neither do such data make it possible to analyse whether couples in nuclear units could live in extended units, whether filial co-residence obligations to parents are being fulfilled by other married sons if not by the reference couple, and whether the behaviour of a sub-group of currently nuclear couples is affected by the experience of extended co-residence earlier in their marriage.

Extended: Contains a co-residing couple, married or not with or without non-relatives (e.g. servants) and own children and includes other family members.

As is shown in Table 1, in most, though not all, countries included in our sample the majority of young couples live in nuclear households. This is especially the case in Egypt (90%) as well as in Brazil, the Philippines and South Africa where the proportion is above 70%. Conversely, particularly in several African countries the proportion that lives in nuclear households is relatively low (just one-quarter in Guinea).

TABLE 1 ABOUT HERE

4.2. Independent and control variables

The analysis includes four socioeconomic variables that are known to influence family and household formation. Education, measured here for both spouses as the highest completed level, is a known indicator of socioeconomic status and earning potential as well as access to new values and beliefs. We know that further progress in the educational attainment of both men and women is still required in many low-income countries, for which reason it could be an important determinant for household composition. For instance, as shown in Table 2, even in 1998, 95.5% of 15-34 year old in-union women in Mali had not completed primary school education. In comparison, this was just 15.2% among South African women several years earlier (and 6.5% in 2007). In most other African countries as well as several Asian countries (particularly Nepal) proportions are also high, while in Latin America, Brazil is worst situated with still more than 40% of women not having completed primary school in 2000. Looking at the educational differences between the partners, we can see that educational homogamy is most common, comprising about 60-70% of couples in most of the countries and even more where school attainment is lowest.

TABLE 2 ABOUT HERE

Female employment status is also included as it is an indicator of female economic status as well as extra financial resources for the household. Labour force participation among women is generally high to very high in Africa, China, Vietnam and Nepal (between about 40% and 90%) and lower in the remaining countries (20%-40%), although there is evidence that in Latin America levels increased during the 1990s. Male employment status was not considered due to a lack of inter-country variability as in about one-third of the census samples the employment rate was 100% and in just one-third less than 98%. Instead, male employment sector (agriculture vs. other) was used as both an indicator of traditional vs. non traditional forms of living arrangements and urbanization. Agricultural employment as a proportion of total employment is most common in Africa, reaching 83% in Mali and least common in South Africa (8%), with between 20% and 40% of Latin American men employed in this sector.

Lastly, headship was included as a potential explanatory variable of household composition, i.e. whether the female partner is the head of household, or her husband, her parents, her parents-in-law or others[7]). Besides providing additional information on possible inter-generational co-residence, it is also an indicator of women's empowerment (if the proportion of female heads is high), which will be further tested in the multi-level regression analysis. As shown in Table 2, the male partner was in all countries analysed the head in the majority of households, irrespective of household type and without any clear macro-geographical pattern: both low and high proportions are observed in all three continents. Conversely, female headship rates ranged between 0.1% in Egypt (2006), Guinea (1983) and the Philippines (1990) and 9.9% in Chile (2002) of all households, while in the Asian countries (except the Philippines) many couples have as head of household one of the parents of the male partner (usually the father) (up to 32% in Nepal). In none of the other analysed country did this proportion reach more than 8%. Few of the young couple households have one of the parents of the female spouse as head, although it appears most common in Latin America.[8]

The analyses also include several demographic variables, the most obvious one being the age of the female partner that serves as an indicator of union entry. One should be reminded that censuses do not disclose information on the date of or age at union entry. However, it does capture, say, 16 year-olds who are married or in a consensual union. If we can subsequently observe differences in the characteristics of these women by household type, i.e., according to country, time periods, educational groups, etc., we are still able to identify risk factors (no negative connotation intended) associated with young women living in an extended household. Obviously, countries known to have a young population structure also have a larger proportion of married women in the five-year age groups 15-19 and 20-24. Even so, cultural factors that affect the age of marriage for women also play a role. For instance, in recent decades Ghana has witnessed the proliferation of economic and political roles for educated women outside the home, "a development that has enabled many to include an element of choice in the decision making process on family life" (Gyima *et al.* 2005, p. 127). This may partly explain why just 6.6% of women in a union in Ghana (2000) are aged 15-19 compared to 18.4% in Mali (1998) around the same year. Age-squared is included in the multivariate analysis to test if the negative association between age and living in an extended household is linear or declines with age. However, apart from absolute age, spousal age difference is also a known indicator of traditional marriage customs. For our analyses, couples have been classified into hypogamous (wife three or more years older than husband), homogamous (age difference less than two years) and four hypergamous categories (husband is 3-7, 8-12, 13-17, or 18+ years older than wife). Age hypogamy is rare in all

[7] The variable was derived from the IPUMS variables SEX, SPLOC_MOM and SPLOC_POP (spouse location (thus existence) of, respectively, the mother and father), RELATE and RELATE_SP (relationship to head of household of, respectively, the respondent and the partner). Couples where both members consider themselves the head of the household (joint headship) could not be identified.

[8] The country-specific pattern of living with parents or parents-in-law is comparable to the one described for the headship rates, although often with substantially higher proportions, especially with respect to the households where the parents of the male partner reside (results not shown). This indicates that it is often one of the couple who is the head of such households rather than a parent (i.e. someone from the older generation).

countries analysed, although least prevalent in Africa (between 0.3% and 3.7%) and most likely in Latin America (between 4.2% and 6.8%). On the other hand, age homogamy showed very large international variation, just 3.1% of couples in Guinea (1983) but between 30% and 40% in all Latin American samples. Only in China and Vietnam is homogamy more common (more than 50%). Age hypergamy is most widespread in Africa and least in Latin America and in the Asian countries where Islam is not the dominant religion. In Guinea and Mali more than half of the male partner is 13 or more years older than the female partner (and in Guinea a third of the husbands are at least 18 years older).

The last set of variables considered are contextual variables, all measured at the country level, and whose average values are provided in Table 2: Singular age at marriage (SMAM) is used as an indicator of the marriage system. Gross Domestic Product (GDP), measured in terms of purchasing power parities, is used as an indicator of economic development. As economic development may not reach all segments of the population equally, we controlled for income inequality (the Gini coefficient). Life expectancy at age 50 (e_{50}) and the total fertility rate (TFR) 20 to 25 years before the census was taken were used as indicators of intergenerational co-residence potential; time is included to ascertain temporal changes, and country and sample variances were calculated as a way to test if country and sample differences in the living arrangements of young couples remain statistically significant after the independent variables are introduced.

Finally, it is important to emphasize that all measures are based on the current status of individuals at the time when the census was conducted as censuses are information sources on prevalence not incidence. However, despite the limitation of offering little biographical information, we strongly believe that the value of the international comparability remains high.

5. Results

After sketching the household, demographic and socioeconomic characteristics of the samples, our next goal is to see whether such factors are indeed associated with the probability of couples living in a nuclear household. We first produced cross-tabulations of the proportion of partnered women who live in nuclear households according to the wife's, husband's and couple's characteristics in order to ascertain any bivariate association at the country level (Table 3). As one can observe with respect to the wife's education differences are far larger between countries than between the education categories within a country. [9] On the whole, those who completed at least secondary school were slightly less likely to live in a nuclear household than those who attained primary school or less. However, this was

[9] Given that levels of male educational attainment are generally very similar (and highly correlated) to female levels the former variable was no longer considered in the analysis. Similarly, the female-male difference in educational attainment variable (i.e. educational hypogamy, homogamy or hypergamy) was also excluded because there were no noteworthy differences in the proportion of households that were nuclear between the three categories (the respective country averages being 62%, 61% and 61%).

most apparent in sub-Saharan African countries (except South Africa), Malaysia and the Philippines. Looking briefly at other variables, women who are head of the household are generally more likely to be living in a nuclear household than if someone else is head (the difference is 10% on average but reached 57% in Guinea in 1983). In most samples, couples where the husband works in the primary sector are more likely to live in a nuclear household than when the husband works elsewhere. As regards to women being active in the labour force, in most samples there was no positive association with nuclear households. Finally, with respect to spousal age differences, moderate variations in the proportion of women living in nuclear households are observed. For most countries, it is generally either age hypogamy or extreme age hypergamy (18+ years) that is associated with a lower preference of living in a nuclear family than in an extended one, although in some Asian countries (China, Malaysia, Nepal) the association is positively linear: the highest proportions of couples living in nuclear households are found in those where the male partner is 18+ years older.

TABLE 3 ABOUT HERE

5.1 Multilevel models

While descriptive statistics can provide a general idea of the type of factors that may play an importance part in determining household systems, most are interrelated and may confound the association between one factor and the outcome. For instance, extreme age hypergamy could be more associated with women living in extended households because they tend to be younger. In order to estimate the independent effect of each explanatory variable and to distinguish between the individual-, sample- and country-level effects multi-level logit regression was employed and modelled according to a binomial distribution as the dependent variable was dichotomous (extended vs. nuclear household). The statistical program *MLwiN* was used. As shown in Table 4 and described below, a young couple's chance to live in a nuclear household varies according to the individual's, couples' and contextual characteristics. Partial model results are also provided to determine if there are variables that are affected by the inclusion of others. There were no high correlations between the variables.

The first model includes the age and educational level of the female partner. Results affirm the first Hypothesis, i.e. that young married/in union women from a low- to middle-income country are more likely to live in a nuclear household as they become older, although the speed of reduction decreases slightly with age.[10] The relationship with education is somewhat more complicated (Hypothesis 2) as the descriptive results already indicated (women with primary education are more likely to live in a nuclear household than those with no or at least secondary education). We therefore looked at a possible interaction with age. Indeed, the model 1 results show a positive association for primary level, though not for the highest level. Although our data do not capture information on the living arrangements prior to marriage, nor on household transitions, the results suggest that having completed primary education initially constrains young women to remain in their extended household,

[10] While the coefficient in the model for the continuous variable age is not significant the trend across age is.

but once they reach their twenties these women are more likely to be living in a nuclear household than those with no completed education, perhaps because of the correlation of education with economic resources that makes them less dependent on others. On the other hand, the fact that women with at least completed secondary school education were equally likely to live in a nuclear household than those without completed education and thus also less than primary educated women, even at older ages, may be because education is also a reflection of the economic resources of the elderly parents. As suggested by Ruggles and Heggeness (2008), wealthy parents may also be supporting their children later in life, something that would facilitate (the continuation of) intergenerational co-residence, even after marriage.

TABLE 4 ABOUT HERE

Contrary to our expectations, being active in the workforce and a migrant reduces a women's probability to be residing in a nuclear household (Model 2 and Hypotheses 3 and 5). This may be because in some areas rising female labour-force participation leads to increased demand for services that can be provided by elders, such as grandchild care and housework, while migration (especially to urban areas) is associated with housing shortages which also favours intergenerational co-residence (Ruggles & Heggeness 2008). On the other hand, women as the head of household was associated with nuclear households, thus confirming Hypothesis 4. The only direct factor related to characteristics of the husband that was tested, i.e. whether he is employed in the primary sector, did not appear to be associated with the type of household young couples live in (Model 3 and Hypothesis 6). However, primary sector employment may not be the ideal proxy for traditional family systems as it mainly concerns employment in agriculture and could therefore also be considered a proxy for (lack of) urbanisation (i.e. those who work in other sectors may be faced with housing shortages). In terms of the influence of spousal differences in age, the association is n-shaped, thus only partially confirming what we expected (Model 4 and Hypothesis 7). Couples had the highest chance to live in a nuclear household when the male partner was either younger or at least 18 years older than the wife and were significantly lower than the reference group (same age) when the male partner was 3-7 or 8-12 age older. Perhaps one reason for the latter result is because these age differences are the cultural norm in most of the studied countries, while a much older husband, an indicator of arranged marriages, may imply a lack of choice (i.e. bargaining power) for young women to the type of household they want to be living in.[11] Why wives who are older than their husbands are also more likely to live in an extended household is unclear.

[11] A cross-tabulation of the two household types according to age-difference and several intergenerational categories of co-residence confirmed that women who are older or of similar age than their husbands are most likely to live with parents or parents-in-law if they themselves are young and to live in a nuclear household if they are older. Conversely, if her husband is much older, more than half live either in a polygamous or other extended household. However, this figure only marginally declines as she gets older.

The second level of the model contains several contextual variables that aimed to ascertain if factors that are not directly related to the individual also had an effect on young couples' living arrangements. First, time was introduced (Model 5) and from the negative model coefficient it would appear that in fact nuclear households have become *less* common over the course of the study period (1980s to mid-2000s) in the countries that were studied. However, when the contextual variables are introduced in Model 6 this result is not replicated. In fact, as time is no longer a significant factor it also confirms the assertion that was made by Ruggles & Heggeness (2008) that no clear trend in intergenerational co-residence can be observed in (the selected) low- and middle-income countries. On the other hand, the economic development indicator GDP (controlled for income inequality) is clearly associated with nuclear households. The same applies for the average age at marriage (SMAM), an indicator of traditional marriage patterns when values are low (Hypotheses 9 and 10). In addition, e_{50}, though not TFR (Hypotheses 11 and 12; both indicators emulating the potential for multigenerational co-residence), confirmed its negative effect on the probability that a young couple lives in a nuclear household.

We also checked for robustness to see if the results would be the same for younger women as for older women living with a partner. Very briefly, results showed that for 25-34 year old women, age and not being a migrant were more strongly associated with living in a nuclear household than for 15-24 year-olds, while educational level, headship and spousal age differences were a more important factor for the younger age group. The coefficients for the contextual factors GDP and SMAM were similar for both age-specific models, while life expectancy at age 50 was more strongly associated with living in an extended household among the 15-24 year olds, perhaps because they are more likely to have parents who are still alive.

Finally, by looking at the cross-sample and cross-country variance, the model showed that individual variables only accounted for a small part of the total variance at these levels. At the same time, the variance in living arrangements between countries (the third analytical level) was reduced by half after the inclusion of contextual variables, suggesting that macro-level factors are at least as important in determining young couples' household structures as individual ones.

6. Summary and discussion

We know that from a global perspective, family formation patterns are not the automatic product of individual decisions, but rather fall among the broader set of socio-cultural practices linked to various and inter-dependent family and gender systems characterizing regions or countries. One may thus form a new household or be obliged to share the household with one's parents or parents-in-law to form a more complex household. Household patterns, are, however, also changing in low-to-middle income countries as economies develop and social modernization processes take place, including the transition towards individualism and an increasing status of women. One resulting consequence has been the diminished role of the extended family, albeit with greater or lesser intensity as considerable

inequalities still exist across the world, that directly affects family processes (e.g. postponement of and less universal marriage, decreased resilience of unions) and the role of women.

However, while researchers have identified both macro- and micro-levels factors associated with changing family formation, such as the massive incorporation of women into formal education systems; high rates of female participation in labour markets; and women's increasing autonomy over sexual and reproductive decisions, the consequences of these changes for the household composition of young adult couples have not been systematically studied. While previous studies concentrated on intergenerational co-residence, our study has taken the perspective of young couples' propensity to live in either extended (that includes intergenerational) or nuclear households. Moreover, a wide range of non-western countries were selected rather than the more common strategy of only considering high-income countries.

Census microdata from IPUMS International were employed to analyse for a selection of 18 low- to middle-income countries from Africa, Asia and Latin America the importance of demographic and socioeconomic factors on two opposing living arrangements of young couples, i.e. nuclear and extended households. Female partners are between 15 and 34 years of age and rather than providing in-depth analyses for each country, the main aim was to look at the general effect of each exogenous variable on the household pattern of young couples.

Although a large number of household types could have been identified or constructed from the census data just two were considered, namely nuclear (i.e. the couple, possible offspring and/or non-relatives) and extended (i.e. also including other family members). Opting for a dichotomous dependent variable has the advantage of being able to apply multilevel logistic regression techniques in order to calculate the effect of potential explanatory variables at different levels and over time by testing both individual- and country-level variables.

Based on what is known from the literature on the effect of the above variables on household formation, a simple set of hypotheses were constructed. Results showed that as predicted, chances of living in a nuclear family are higher for older women than for younger women, although the rate of increase decreases by age. Age homogamy or moderate hypergamy also favours living in nuclear households. The same applies to women with completed primary level education, although only after they reached a certain age, an outcome that is worth exploring in more detail in the future. The fact that in-union women with completed primary school education are more likely to live in a nuclear household than those without may be because education helps one to find a job (Coontz 2000), while it also provides access to new values and beliefs which influence family and demographic behaviour (Thornton and Philipov 2009). Thus, in the context of educational expansion, increasing female labour force participation but persistent international differences, it may be worth exploring both the economic and ideational factors behind the choice of household by young couples in a similar manner as recently international fertility change was studied (Thornton *et al.* 2010). However, this does not explain why the highest educated showed more propensity to live in extended households, even at older ages, than those who completed primary school. The earlier made reference to Ruggles and

Heggeness (2008) who suggested that the wealthy are not only more likely to send their daughters to school beyond primary school but also continue to support their children even after they get married, suggests that the decision not to live independently is not just based on economics and "modern values", but also on the more traditional values related to mutual responsibility, first of the parents towards the children and later the other way around when the elderly parents become more dependent on their children for both economic support and care.

As living in an extended household is also related to having a spouse not employed in the rural sector and being a migrant, it would suggest that there is some association between living arrangements and urban living conditions (e.g. housing shortage, high cost of living). Indeed, household extension is one way in which families adjust to economic uncertainty (Fussel & Paloni 2004) and housing shortage (Ruggles & Heggeness 2008), while female-headed households represent another adjustment to marital uncertainty as women are increasingly able to exercise their right to leave a troubled marriage as they become more economically independent and empowered (Fussel & Paloni 2004). Because men and women continue to marry, many women end up forming, and some heading, a new household. One aspect that will be worthwhile exploring in future, therefore, is to analyse the relationship between household type, headship and civil status of both couple members as well as the effect of urban housing shortages on couples' living arrangements.

The fact that not time, but economic growth and the average age of marriage were associated with the likelihood of living in a nuclear household also suggests the importance of external factors in shaping young couples households. Nevertheless, the cross-sample and cross-country variance showed that the traditional individual-level demographic and socioeconomic variables like age, education and labour force participation accounted for a small part of the total variance in the dependent dichotomous variable household structure. While significant effects at the individual level were found, differences across countries still persisted but diminished when contextual variables were added. So in future research we may need to look beyond the classical determinants of union formation and incorporate other, more region- and country-bound indicators into the model.

In light of the ongoing economic growth and social modernization in low-to-middle income countries that are hypothetically supposed to erode the operational significance of the patrilineal principle because it allows couples to become more economically independent of the husband's father, one might have expected a sharper decline in extended families than that we observed. However, from our results and from elsewhere it would seem that intergenerational co-residence constitutes an important fraction, in some cases, the majority, of households in the analysed African, Asian and to a lesser extent, Latin American countries. One explanation provided by Greenhalgh (1984) is that extended familial networks remain strongly based on the patrilineal principles of intergenerational obligations regarding the provision by the parents of education, jobs, spouses and the sons' shares of the family property, in return for the children's contribution to the family economy and support by the sons in old age. Even so, an increase in women's job opportunities and economic importance has led some families to actively cultivate female-linked ties in their search for urban housing and jobs

(Weinstein *et al.* 1990). This seems to be particularly the case in Latin America where several countries experienced a decrease in nuclear households, but where female headship rates were relatively high.

In the context of declining mortality and fertility rates that is causing populations to age, including in developing countries, there are several ways that demographic factors may affect household patterns of young couples. Concurrently with the reduction in household size attributable to economic development, improvements in life expectancy and lower fertility will mean that more young cohorts will have to support their elderly parents as they will progressively have fewer siblings and longer surviving parents than their predecessors. In other words, in societies where old-age support in the form of co-residence is still expected (i.e. especially in much of Africa and South and East Asia), a decline in fertility implies, by definition, a higher probability for surviving children (especially sons) to live with their parents. This also applies the other way around: increasing old-age survival augments the availability of parents for young couples to co-reside with (which our results confirmed for the 15-24 year olds). Conversely, in high fertility and patrilocal societies with emphasis on the vertical filial tie, not all sons co-reside with their fathers simply because there is no room for them or because the strain is likely to be particularly pronounced if there are several adult sons in residence or due to a desire for independence, especially in the case of young couples. In this case, the solution may be a household partition by which an adult son leaves the extended family to head his own nuclear family (Weinstein *et al*. 1990; Foster & Rozenzweig 2002; Edlund & Rahman 2005). Under this scenario the change in the proportion of nuclear households may simply be a reflection of a changing number of surviving sons (due to both fertility and mortality). In the study by Weinstein and colleagues (1990), who used survey data, on the household composition in Taiwan they therefore analysed the living arrangements of husband's parents and married sons by the availability of married brothers. Unfortunately, censuses do not collect information on non-resident (and living) siblings or parents.

One other limitation of using census data is that the full extent of co-residence practices cannot be measured as it only provides information on current, not past, co-residence. We cannot tell from our data if couples had lived with one set of parents before but no longer do so because they have died. Similarly, couples may be co-residing with one of the parents as he or she was widowed or no longer able to care for themselves. Finally, others have used in-depth surveys to capture more detail information on family systems. For instance, Weinstein *et al*. (1990) used a less restrictive definition of co-residence, separating the economic versus the associative basis of co-residence. They argued that in households where involvement by other relatives is less (i.e. when the pertinent relatives either eat or sleep together but not both), they still contain individuals that influence the behaviour of their members that using the strict economic definition (as used in censuses) would be excluded. This may have disclosed less obvious changes that are taking place in intergenerational living arrangements that are nevertheless indicators of social change. Finally, while our study opted for the maximum number of countries, the number of countries could be reduced in favour of the inclusion of more explanatory

variables, including religion, ethnicity and region of residence as we know that also within-country differences exist in family- and household formation.

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Table 1

Characteristics of census samples included in the analysis

Country/year	*Original sample density#*	*Women aged 15-34 & in union**	*Nuclear*	*Extended*
Africa		*1890168*		
Egypt 2006	5.0%	618121	90.3	9.7
Ghana 2000	10.0%	97700	38.4	61.6
Guinea 1983	10.0%	40385	25.0	75.0
Guinea 1996	10.0%	66086	21.7	78.3
Kenya 1989	5.0%	57369	61.5	38.5
Mali 1987	10.0%	72061	44.0	56.0
Mali 1998	10.0%	79558	49.0	51.0
South Africa 1996	10.0%	107977	76.7	23.3
South Africa 2007	2.0%	24090	74.3	25.7
Uganda 1991	10.0%	123864	51.0	49.0
Uganda 2002	10.0%	170661	67.1	32.9
Tanzania 1988	10.0%	163699	46.5	53.5
Tanzania 2002	10.0%	268597	59.1	40.9
Asia		*3014158*		
China 1982	1.0%	819590	62.9	37.1
China 1990	1.0%	1202344	64.9	35.1
Malaysia 1980	2.0%	13054	56.8	43.2
Nepal 2001	11.35%	236484	51.2	48.8
Philippines 1990	10.0%	387620	74.8	25.2
Vietnam 1989	5.0%	215317	66.8	33.2
Latin America		*2134373*		
Brazil 1991	5.8%	728789	79.3	20.7
Brazil 2000	6.0%	757295	81.6	18.4
Chile 1992	10.0%	95515	69.6	30.4
Chile 2002	10.0%	87193	71.4	28.6
Ecuador 1990	10.0%	65085	69.8	30.2
Ecuador 2001	10.0%	77594	66.1	33.9
Panama 1990	10.0%	15879	62.2	37.8
Panama 2000	10.0%	19907	65.6	34.4
Peru 1993	10.0%	124379	62.1	37.9
Peru 2007	10.0%	162738	62.9	37.1
Total		*6898950*		

The maximum sample that the Minnesota Population Center (2010) has available on their website was used.

* Final sample size included all women aged 15-34 in union and living with partner in a nuclear or extended household. Cases where there is no information on male and female education, female employment status and male employment sector are excluded.

TABLE 2
Independent variables included in the analysis. Percentages pertain to women aged 15-34 living with male partner.

Country/year	*Educational attainment wife*			*Educational attainment husband*			*Educational difference between partners*			*Emp-loyed*	*Male partner works in agriculture*	*Head of household*				
	< pri-mary	*Primary*	*Second-ary/uni.*	*< pri-mary*	*Primary*	*Seconary uni.*	*Homo-gamy*	*Wife> husb.*	*Husb. > wife*			*Wife*	*Husband*	*Parents*	*Parents-in-law*	*Other*
Africa																
Egypt 2006	41.8	8.7	49.4	36.1	9.9	54.0	73.4	10.0	16.6	11.6	26.9	0.1	96.3	0.2	3.2	0.2
Ghana 2000	62.0	31.4	6.5	46.1	42.3	11.6	64.9	8.1	26.9	77.5	56.7	5.2	80.3	2.9	6.0	5.6
Guinea 1983	95.6	2.7	1.7	91.8	4.1	4.2	92.4	1.6	6.0	49.7	71.4	0.1	89.4	0.3	4.1	6.1
Guinea 1996	95.3	4.0	0.7	86.1	8.9	5.0	86.6	1.4	12.0	70.9	68.7	0.2	87.8	0.4	6.5	5.1
Kenya 1989	46.7	52.0	1.3	37.6	58.9	3.6	70.9	8.8	20.2	70.3	42.3	2.8	90.1	0.3	5.3	1.5
Mali 1987	92.8	6.5	0.7	89.0	8.3	2.8	88.1	3.4	8.5	51.3	82.9	0.3	98.1	0.1	0.4	1.0
Mali 1998	95.5	4.1	0.4	89.7	8.4	2.0	90.0	1.7	8.3	39.5	80.6	0.2	98.5	0.1	0.6	0.8
South Africa 1996	15.2	49.7	35.1	18.2	44.1	37.7	68.3	16.0	15.7	41.8	11.7	5.7	89.2	1.1	2.8	1.2
South Africa 2007	6.5	40.2	53.3	9.5	35.8	54.7	68.4	16.4	15.2	46.3	7.9	6.2	85.8	1.6	4.9	1.4
Uganda 1991	73.8	26.0	0.2	52.2	46.3	1.5	63.1	7.1	29.8	70.4	75.3	0.9	90.4	0.3	6.1	2.4
Uganda 2002	58.9	37.5	3.6	42.2	48.3	9.5	60.6	9.1	30.2	64.7	63.4	0.4	96.9	0.3	1.6	0.8
Tanzania 1988	52.1	46.3	1.6	48.8	45.8	5.3	68.0	12.7	19.3	87.8	74.0	5.0	83.5	1.0	5.2	5.3
Tanzania 2002	32.7	63.2	4.1	26.7	65.3	7.9	67.0	11.8	21.3	76.6	69.2	5.1	88.4	0.6	3.3	2.6
Asia																
China 1982	41.3	52.7	6.0	11.1	76.6	12.3	56.4	4.8	38.8	87.6	75.3	1.8	77.2	1.0	19.2	0.8
China 1990	25.8	60.9	13.3	11.2	68.5	20.3	64.5	7.8	27.7	90.4	69.4	2.5	75.0	1.2	20.6	0.7
Malaysia 1980	35.8	61.7	2.5	24.7	70.0	5.3	68.5	8.8	22.7	32.0	32.3	1.2	80.3	4.5	11.3	2.7
Nepal 2001	73.6	14.3	12.1	49.2	24.7	26.1	64.0	3.0	33.0	55.6	55.3	2.2	65.8	0.0	31.5	0.5
Philippines 1990	19.4	42.2	38.3	23.1	37.6	39.3	65.3	18.4	16.3	25.6	50.3	0.1	88.9	4.9	5.1	1.0
Vietnam 1989	39.3	50.5	10.3	30.7	56.3	13.0	66.8	11.3	21.9	84.8	71.5	7.8	68.4	2.6	19.9	1.3
Latin America																
Brazil 1991	55.1	25.8	19.1	57.3	23.4	19.3	67.3	17.0	15.7	30.0	24.4	0.7	91.3	3.3	3.7	1.0
Brazil 2000	42.5	32.2	25.3	47.3	28.9	23.8	60.2	22.4	17.4	40.4	19.6	3.8	87.2	3.7	4.4	0.9
Chile 1992	11.6	54.0	34.4	12.7	53.0	34.3	61.4	19.8	18.8	19.9	18.5	3.7	81.9	6.8	5.8	1.8
Chile 2002	6.9	46.8	46.3	7.4	45.5	47.1	64.2	17.7	18.1	31.2	14.3	9.9	75.7	7.2	5.7	1.5
Ecuador 1990	28.5	48.7	22.8	25.4	49.0	25.6	67.0	13.8	19.3	23.0	32.4	1.3	88.2	3.8	5.0	1.8
Ecuador 2001	23.5	48.8	27.7	22.8	48.2	29.0	64.8	16.7	18.5	29.4	31.6	3.9	82.3	5.2	6.6	2.0
Panama 1990	18.9	49.1	32.1	18.1	47.6	34.3	62.6	17.4	20.1	23.3	31.5	0.8	83.0	5.5	7.6	3.1
Panama 2000	14.0	48.7	37.3	12.7	48.5	38.7	62.7	17.4	19.9	29.2	23.9	1.5	81.1	6.7	8.0	2.7
Peru 1993	37.8	26.5	35.7	27.5	26.0	46.4	63.4	9.8	26.9	23.2	36.6	1.1	83.3	5.9	6.6	3.1
Peru 2007	19.6	28.7	51.7	14.0	25.7	60.3	64.7	11.8	23.4	34.3	31.4	5.4	76.0	7.9	8.0	2.8

TABLE 2 Continued.

Country/year	*Age*				*Age difference with male partner*						*Migrant*	*Context*			
	15-19	*20-24*	*25-29*	*30-34*	*Hypo-gamy (<-2 yrs)*	*Homo-gamy (-2 to 2 yrs)*	*Hypergamy*					*GDP*	*GINI*	*SMAM*	e_{50}
							3-7	*8-12*	*13-17*	*18+*					
Africa															
Egypt 2006	4.7	26.8	38.1	30.4	0.3	14.7	48.4	27.2	7.0	2.4	9.2	5399	32.8	23.9	23.8
Ghana 2000	6.6	24.1	36.1	33.1	3.1	15.1	34.6	22.4	11.3	13.5	26.9	1207	40.8	23.8	22.6
Guinea 1983	17.4	25.2	31.9	25.5	0.6	3.1	16.4	26.8	19.9	33.3	22.6	948	47.0	18.5	20.1
Guinea 1996	19.1	24.6	31.9	24.4	0.6	3.6	15.7	26.5	20.2	33.4	24.3	1198	40.3	18.7	20.9
Kenya 1989	10.8	31.2	33.9	24.1	1.1	12.7	42.2	24.2	8.9	10.8	29.2	1629	57.5	23.2	23.0
Mali 1987	17.6	27.6	30.4	24.4	0.3	4.0	22.1	30.5	18.7	24.4	19.7	908	36.5	19.8	20.2
Mali 1998	18.4	27.9	28.4	25.3	0.3	4.1	23.6	31.4	18.6	22.0	15.7	1122	40.0	21.3	20.6
South Africa 1996	2.7	19.9	36.7	40.6	2.7	32.0	42.7	14.7	4.7	3.1		8054	56.6	24.5	22.4
South Africa 2007	2.6	19.3	34.4	43.7	2.3	28.6	41.9	17.4	6.1	3.7	39.4	10538	57.7	24.9	21.5
Uganda 1991	18.9	31.8	28.8	20.6	1.5	18.4	42.7	20.6	7.8	9.1	31.6	673	44.4	20.9	20.6
Uganda 2002	14.1	32.8	30.4	22.8	1.8	20.9	43.6	20.4	7.2	6.1	27.3	980	45.8	22.5	19.7
Tanzania 1988	14.0	30.1	33.0	23.0	1.3	13.9	37.6	24.6	10.1	12.4	24.0	915	35.3	22.1	21.0
Tanzania 2002	10.6	31.4	32.4	25.6	1.3	17.8	42.1	22.7	8.1	8.0	20.6	996	36.7	22.1	20.0
Asia															
China 1982	2.5	19.3	43.4	34.8	2.9	53.3	36.4	6.3	0.9	0.2		1180	28.4	25.0	25.2
China 1990	2.1	28.0	38.2	31.7	3.1	59.1	31.8	4.9	0.8	0.3	5.0	1862	35.7	22.7	24.2
Malaysia 1980	5.0	24.2	37.4	33.4	2.0	26.2	45.6	18.7	4.7	2.9	29.9	5654	50.6	25.5	25.0
Nepal, 2001	10.9	28.8	31.7	28.7	1.2	34.4	47.7	12.3	2.8	1.5	28.4	1068	46.7	22.7	21.3
Philippines 1990	6.0	24.3	34.7	35.0	5.0	41.3	37.5	10.9	3.1	2.2	23.0	2867	40.6	25.0	24.8
Vietnam 1989	5.0	26.4	36.4	32.2	3.8	52.1	36.8	5.9	0.9	0.5	4.5	1082	35.7	22.7	24.5
Latin America															
Brazil 1991	8.7	25.0	33.6	32.6	5.9	31.7	40.1	14.6	4.4	3.3	20.5	7719	56.9	23.0	25.0
Brazil 2000	9.3	25.0	32.0	33.7	6.2	31.0	38.8	15.2	5.1	3.7	20.4	8550	55.8	22.7	26.9
Chile 1992	4.3	21.2	36.3	38.3	6.4	39.0	37.0	11.8	3.3	2.5	32.6	8504	53.9	21.6	26.7
Chile 2002	3.9	18.3	34.7	43.1	6.2	38.0	36.9	12.8	3.7	2.4	34.3	11936	56.6	21.2	29.7
Ecuador 1990	9.2	26.2	33.2	31.5	4.7	34.5	37.2	15.0	4.5	4.1	28.9	6026	50.5	23.3	25.9
Ecuador 2001	10.1	27.7	31.3	31.0	5.3	34.8	37.1	14.0	4.6	4.1	27.9	6202	54.1	22.2	27.4
Panama 1990	9.5	25.8	33.2	31.5	5.7	30.1	36.2	17.0	6.3	4.8		6568	49.6	22.8	28.8
Panama 2000	9.1	23.8	32.9	34.2	6.8	31.0	35.6	15.8	6.2	4.6	30.1	8855	50.7	21.8	30.7
Peru 1993	7.1	25.2	33.8	34.0	4.2	35.6	37.9	14.6	4.3	3.3	29.4	4951	43.9	24.0	29.1
Peru 2007	7.8	24.6	32.7	34.8	5.1	35.9	36.8	14.3	4.5	3.5	26.2	7884	47.2	23.2	30.2

Source: IPUMS-International (Minnesota Population Center 2010). Own calculations.

TABLE 3
Proportion of women aged 15-34 who live with partner in a nuclear household according to wife's, husband's and couple's characteristics

	Educational attainment wife			*Household head*		*Employment status wife*		*Migrant status wife*		*Male partner works in agric.*		*Spousal age difference*					
	< Prim	*Prim*	*Sec+*	*Wife*	*Other*	*Yes*	*No*	*Yes*	*No*	*Yes*	*No*	*-19 to-3*	*-2 to 2*	*3 to 7*	*8 to 12*	*13 to 17*	*18+*
Africa																	
Egypt 2006	88.5	90.1	91.9	94.9	90.3	91.0	90.3	92.2	90.2	87.4	91.4	84.2	89.7	90.9	90.5	89.1	85.7
Ghana 2000	35.9	43.8	35.8	42.5	38.1	39.0	36.3	40.0	37.8	35.4	42.2	16.9	39.4	43.5	40.4	37.5	26.5
Guinea 1983	25.4	18.3	11.9	81.8	25.0	25.6	24.5	23.8	25.4	26.0	22.6	24.4	28.4	29.4	29.7	25.1	18.7
Guinea 1996	21.7	23.5	17.9	47.0	21.7	21.1	23.2	25.1	20.6	20.8	23.8	8.7	23.4	27.7	25.3	21.7	16.2
Kenya 1989	62.7	61.1	31.1	67.6	61.3	60.8	63.1	60.9	61.7	63.7	59.9	52.6	61.3	63.4	63.5	59.6	52.1
Mali 1987	44.7	37.2	17.7	66.3	43.9	41.2	47.0	44.3	43.9	45.1	38.5	41.2	56.0	55.2	49.6	40.2	27.9
Mali 1998	49.5	39.3	38.3	71.3	49.0	48.6	49.3	48.3	49.2	49.6	46.7	40.5	63.0	60.3	54.2	45.3	30.3
South Africa 1996	78.5	76.0	77.1	78.6	76.6	76.7	76.8	n/a	n/a	81.4	76.1	75.1	76.8	77.0	76.9	77.0	73.6
South Africa 2007	76.0	73.4	74.8	77.7	74.1	74.5	74.1	76.5	72.9	77.0	74.1	76.6	74.6	73.5	76.0	74.2	72.2
Uganda 1991	52.4	47.0	27.3	58.9	50.9	51.4	50.0	50.9	51.0	52.1	47.5	38.6	52.2	54.0	51.2	46.7	40.0
Uganda 2002	69.2	66.1	41.8	64.5	67.1	67.7	66.1	64.6	68.0	69.4	63.2	55.2	67.5	68.3	67.1	66.2	62.1
Tanzania 1988	48.1	45.4	29.2	56.3	46.0	46.3	48.1	45.0	47.0	47.0	45.1	22.5	47.0	49.8	48.5	43.7	36.7
Tanzania 2002	59.3	60.2	38.8	67.4	58.6	59.8	56.8	54.4	60.3	61.1	54.4	38.5	61.3	61.6	58.4	56.3	48.9
Asia																	
China 1982	63.5	62.9	59.5	87.9	62.5	61.8	70.6	n/a	n/a	61.4	67.6	53.0	61.9	64.6	65.3	65.8	71.3
China 1990	64.7	63.5	71.4	89.2	64.3	64.4	69.7	58.9	65.2	63.2	68.7	53.7	64.1	67.3	65.9	61.5	63.9
Malaysia 1980	61.7	54.8	37.9	64.5	56.7	54.7	57.8	57.2	56.7	65.2	52.9	53.3	51.4	56.9	61.9	60.5	68.6
Nepal 2001	52.6	47.0	47.2	83.5	50.4	50.7	51.8	56.3	49.1	47.1	56.1	32.4	43.2	53.5	61.3	64.0	67.1
Philippines 1990	84.0	80.0	64.6	53.7	74.9	67.2	77.5	71.7	75.9	81.1	68.5	69.9	74.0	76.2	75.5	75.6	74.6
Vietnam 1989	64.7	68.6	65.8	88.1	65.0	67.4	63.7	62.1	67.2	67.4	65.3	51.4	66.1	69.2	67.9	67.4	66.3
Latin America																	
Brazil 1991	80.8	77.8	77.0	76.5	79.3	76.4	80.5	78.2	79.6	82.6	78.2	75.1	78.2	80.0	80.3	80.3	81.8
Brazil 2000	82.6	80.0	81.9	84.9	81.5	81.9	81.4	81.8	81.5	82.8	81.3	78.7	80.6	82.1	83.0	83.3	81.7
Chile 1992	73.3	71.2	65.7	77.9	69.3	63.3	71.1	69.9	69.5	71.7	69.1	65.1	69.0	70.7	70.7	70.8	66.8
Chile 2002	71.4	71.0	71.7	80.0	70.4	70.7	71.7	72.7	70.8	74.9	70.8	65.1	70.8	72.3	74.2	72.5	64.3
Ecuador 1990	72.7	69.5	66.9	70.0	69.8	66.0	71.0	67.0	71.0	71.6	69.0	56.5	69.8	71.7	71.3	68.1	65.3
Ecuador 2001	67.2	65.5	66.1	70.7	65.9	65.7	66.2	64.3	66.7	67.8	65.2	57.3	65.6	67.5	67.6	66.4	63.4
Panama 1990	59.9	63.3	62.0	56.0	62.3	60.0	62.9	n/a	n/a	63.6	61.6	50.9	59.5	63.9	64.8	65.3	67.4
Panama 2000	59.6	66.6	66.6	71.6	65.6	65.9	65.5	63.1	66.7	63.7	66.2	61.1	64.3	66.3	67.4	67.3	67.6
Peru 1993	68.6	61.3	55.6	65.8	62.0	57.8	63.4	57.2	64.0	69.2	57.9	55.3	61.7	62.8	63.3	61.8	60.6
Peru 2007	72.6	65.6	57.6	67.7	62.6	60.2	64.2	59.6	64.0	71.7	58.8	53.5	62.6	64.2	64.8	63.6	56.6

Source: IPUMS-International (Minnesota Population Center 2010). Own calculations.

TABLE 4
Multilevel logistic regression coefficients of the determinants of living in a nuclear household (vs. extended household) for young couples in 18 low- to middle-income countries from the late 1980s to early 2000s[a]

Type/level	Variable name	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*[b]	*M6 age 15-24*	*M6 age 25-34*
Wife	Age	**0.147**	**0.153**	**0.154**	**0.165**	**0.167**	**0.193**	-0.033	**0.333**
(Level 1)	Age squared	-0.002	-0.002	-0.002	-0.002	-0.002	-0.003	-0.003	-0.005
	Educational attainment (ref. = < primary)								
	Primary	**-0.706**	**-0.697**	**-0.691**	**-0.722**	**-0.725**	**-0.687**	*-0.737*	**-0.511**
	Secondary/University	0.008	-0.013	0.002	-0.056	-0.084	-0.195	-0.616	0.018
	Educational attainment * age (ref. = < primary)								
	Primary*age	**0.026**	**0.026**	**0.026**	**0.027**	**0.027**	**0.026**	**0.033**	**0.017**
	Secondary/University*age	-0.007	-0.006	-0.005	-0.003	-0.002	-0.001	-0.021	-0.007
	Employed (vs. not employed)		**-0.166**	**-0.172**	**-0.166**	**-0.170**	**-0.172**	**-0.151**	**-0.168**
	Wife is head of household (vs. other)		**0.651**	**0.664**	**0.678**	**0.700**	**0.750**	**0.909**	**0.632**
	Migrant (vs. no migrant)		**-0.084**	**-0.075**	**-0.074**	**-0.076**	**-0.079**	-0.006	**-0.104**
Husband (L1)	Works in agriculture (vs other sectors)			0.058	0.064	0.065	0.065	0.067	0.098
Spousal	Up to -3 years				**-0.459**	**-0.464**	**-0.490**	**-0.757**	**-0.495**
Difference	-2 to 2 years (reference)				-	-	-	-	-
(M-F)	3 to 7 years				**0.174**	**0.176**	**0.187**	**0.316**	**0.130**
(Level 1)	8 to 12 years				**0.168**	**0.170**	**0.182**	**0.346**	**0.089**
	13-17 years				0.045	0.043	0.045	*0.194*	-0.023
	18+ years				**-0.230**	**-0.236**	**-0.245**	-0.152	**-0.259**
Contextual	Survey year (year-1900)					**-0.012**	0.009	0.009	0.009
(Level 2)	GDP (Purchasing power parities) (log)[c]						**0.543**	**0.649**	**0.553**
	Singulate Mean Age at Marriage						**0.110**	**0.078**	**0.101**
	Life expectancy at age 50						**-0.065**	**-0.118**	-0.043
(Level 2)	Sample variance	**0.031**	**0.032**	**0.032**	**0.031**	**0.029**	**0.022**	**0.030**	**0.020**
(Level 3)	Country variance	**0.396**	**0.320**	**0.362**	**0.350**	**0.316**	**0.159**	**0.172**	**0.142**
	Constant	**-1.804**	**-1.790**	**-1.835**	**-2.106**	**-3.289**	**-8.046**	**-4.837**	**-10.360**
	Number of cases	6898950	6898950	6898950	6898950	6898950	6898950	2251157	4647793

Source: IPUMS-International (Minnesota Population Center 2010). [a]All models are controlled for country effects and census type (de jure, de facto or both). [b] The effect of TFR on couples' living arrangements is not significant when e_{50} is replaced by TFR; [c] Controlled for income inequality (Gini); in **bold**, significant at $p<0.05$, in *italics*, significant at $p<0.10$.